Final Report to the Senior Citizen's Secretariat, Research Fund on Aging

Factors Which May Predict the Institutionalization of Alzheimer's Patients

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Preface and Acknowledgements

This report is in two sections. The first section includes the major report on Factors Which may Predict Institutionalization of Alzheimer's Patients. The second section is a thesis undertaken by Ms Dixie Watson as part of her MSc degree in Family Studies. Ms Watson's thesis is entitled Family Help to Family Caregivers of Alzheimer Patients. In it she explores issues of family help received and help wished for by primary caregivers.

A study of this magnitude could not be undertaken without the help of skilled assistants. Margo Patterson, Isobel Patterson, Jayne Willoughby and Susan Burwash conducted the interviews for the project. Susan Burwash did the data analysis for the project report. All were involved in support to the administration of the project. Our thanks are extended to all of them.

Kingsley Jones and the staff at the Edmonton General Hospital were generous with their time and their willingness to put us into contact with sample members. Members of the Alzheimer's Society invited us to speak to members about the project. Many members of the Society were also respondents in the study. We hope that the findings from the study will be of some benefit to them as they manage the difficult process of caregiving.

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Section 1

Factors Which May Predict the Institutionalization of Alzheimer's Patients

Alzheimer's disease (AD) is the most common dementia syndrome which has been identified. It is characterized by gradual progressive disorientation and memory loss which results in the total dependency of its victims. Surveys indicate that AD is a major cause for institutionalization among persons in nursing homes, accounting for up to 50% of all admissions. Many other AD patients are confined on geriatric wards, in chronic care, or psychiatric hospitals. However, institutionalization is not inevitable for such patients. It is thought that half or more AD victims are maintained at home by a relative, sometimes for lengthy periods of time. Yet there have been only limited attempts to determine what factors contribute to such a decision, or the relative costs and benefits to both caregiver and patient .

This study was focussed on this gap in our understanding of the caregiving experience of relatives of AD patients. The study had two major objectives. The first objective was to identify AD patient characteristics, characteristics/circumstances of caregivers and extended family characteristics which might predict whether a patient is institutionalized relatively soon after diagnosis or maintained for several years in the home of a caregiving relative. The second objective was to describe caregivers use of community and government support services, determining the perceived helpfulness of these services and identifying where more support is needed. Information on factors which predict the length of time that AD patients are maintained at home, and the services most often requested by caregivers may help with program planning. Programs which are effective in reducing the demands of caregiving might prevent premature or unnecessary institutionalization of Alzheimer's patients.

Literature Review

Many relatives of AD patients opt for institutionalization, but at least 50% of all Alzheimer's victims are maintained at home by families who endure considerable personal and economic sacrifice in order to keep their relative at home (Fengler and Goodrich, 1979; Isaacs, 1971; Lowther and Williamson, 1966). There have been few studies to determine what factors influence this decision, and they have typically examined only one or a small number of variables for their separate effects. In addition most research has been conducted in the U.S., where social circumstances may be quite different.

Many of the factors investigated in this study are suggested by theory, although few have been formally researched. For example, family systems theorists would suggest that patterns of family interaction and rules about interaction are remarkably persistent, so that early family interaction might influence later caregiver behaviour. A small amount of research has been aimed at premorbid family interaction patterns or quality of relationships with relatives who subsequently become caregiving relatives. In a longitudinal study focusing on spouse caregivers, Zarit and Zarit (1982) found no relationship between earlier quality of family relationships and subsequent institutionalization.

Structural rules about the responsibilities of different family members may also influence how these relatives take on the caregiving role. Zarit and Zarit (1982) for example, have found that spouses were less likely to institutionalize an AD patients than siblings or children. Similarly, in a longitudinal study of 209 caregivers, Colerick and George (1986) found that children were more likely than spouses to institutionalize an AD relative. They did not study the quality of pre-illness interaction between caregiver and patient.

Of caregiver characteristics most likely to influence timing of institutionalization, objective caregiver burden (Kraus, 1984) and subjective burden (Zarit et al, 1980) have been most studied although there are problems with conceptual clarity with these two caregiver variables. Colerick and George (1986) used a psychiatric symptom evaluation to measure subjective burden and found increased stress among caregivers who opted for institutionalization. They also studied the impact of caregiving on the caregiver's lifestyle and found that only dissatisfaction with time for recreational activities was significant. In contrast, Zarit and Zarit (1982) seemed to equate subjective burden with impact and found no relationship between this variable and institutionalization. In fact, they found that subjective burden decreases over time as caregivers become accustomed to dealing with the situation. None of these researchers looked at coping mechanisms per se. However, caregivers in Zarit and Zarit's study frequently volunteered that they had opted for institutionalization when their ability to tolerate the situation or cope with daily tasks diminished.

Caregivers who believe they can influence the outcome of a situation appear more likely to opt for keeping the patient at home; and religious or ethnic backgrounds, which suggest that it is wrong to abandon an ill family member to the care of others also counter institutionalization (Levine et al, 1983; Zarit & Zarit, 1982).

There is also some evidence that ability to mobilize formal and informal physical/monetary support counters institutionalization (Archbold, 1983) and that emotional support from the caregiver's family is important if a patient is to be kept at home (Kay et al, 1970; Foster et al, 1976; Keating & Gilewich, 1985). Neither Colerick and George (1986) nor Zarit and Zarit (1982) examined the nature of family support, although both pairs of researchers looked at its extent. Zarit and Zarit found no relationship between frequency of informal support (that is, from family and friends) and the decision to institutionalize; but

they noted that support for all caregivers was relatively low. Interestingly enough, Colerick and George observed that the more social support caregivers received (measured according to the number of services performed on their behalf) the more likely they were to institutionalize their AD relative. One possible explanation for this phenomenon is that with help comes advice to institutionalize. For example a daughter caring for her AD mother may get help from husband and children at home but also pressure to relieve this demand on the family by opting for institutionalization. Finally, positive physician and community services support may delay a caregiver's decision to institutionalize his/her AD relative (Levine et al, 1983).

Methods

Sample

Sample members were drawn from two sources: The Geriatric Outpatient Clinic of the Edmonton General Hospital and the Edmonton Chapter of the Alzheimer's Society. The Edmonton General is a teaching hospital affiliated with the University of Alberta. The Geriatric Outpatient Clinic was opened in the fall of 1981 and is the only one of its type in Edmonton. Approximately 50 AD patients per year are diagnosed/confirmed at this facility. An Alzheimer's diagnosis has to be made primarily on the basis of clinical findings supported by appropriate radiological and laboratory investigations (described by Roth, 1981). The advantage of using patients from one facility is that criteria for diagnosis are standardized; and since the Geriatric Clinic is a specialized unit, an AD diagnosis is based on expert assessment. Although the accuracy of a clinical diagnosis can only be confirmed at autopsy, Roth (1981) found an 85% correspondence between detailed clinical assessments and pathological findings.

Most AD patients diagnosed at the Clinic have begun to show symptoms later than age 60, by definition of its being a geriatric facility. Because the impact of the disease on family members might differ when onset occurs in the 40-60 age range, patients were also sought through the Edmonton Alzheimer's Society. Names of patients were cross referenced so that caregivers were not contacted twice. A small number of caregivers was identified through Edmonton Home Care, day hospitals and organizations like the YMCA which provide in-home respite on a limited basis.

To be eligible, an individual had to have served as primary caregiver to a diagnosed Alzheimer's patient, that is to have been the person most involved in caring for the patient, and be living in Alberta for interview purposes. Since our goal was to eventually divide caregivers into those who had opted for early versus late institutionalization, some decision had to be made on a cut-off point. At that time, and in fact until now, there was no consensus in the literature regarding how long patients might typically be kept at home.

As a guideline, we examined the experience of patients who had been diagnosed at the Edmonton General Hospital's Geriatric Outpatient Clinic during its first year of operation, 1981. By 1985, about 50% of those patients had been institutionalized by their next-of-kin. Most had been admitted within 18 months of diagnosis; while another clustering had occurred around three years. Because of the experience of General Hospital patients, we decided that respondents in this study who had cared for a relative at home for at least 3 full years after the first appearance of symptoms, would be designated as having "maintained the patient beyond the typical admission period". Since the average duration of Alzheimer's was thought to be 4 to 7 years at the time, caregivers who had maintained a patient at home for at least three full years would probably be near or have passed the halfway point in the patient's disease course.

A substantial proportion of the next-of-kin who were referred to the study could not be interviewed. The majority of the lost cases had moved and could not be traced. Another group refused to be interviewed citing poor physical and emotional health due to the strain of caregiving. Thus the sample is likely to be biased toward those who are coping well. A small number denied that their relative had Alzheimer's Disease. Some were non-English speaking. Our major concern about possible biases in the sample is that those at highest risk of institutionalization may not have been involved in this study and may be relatively unavailable in future studies.

Research Instruments

All caregivers were interviewed using a standard questionnaire (Appendix A).

Included in the questionnaire were variables on 13 possible predictors of time at home which have been typically examined as predictors of institutionalization:

1.*Caregivers kinship relationship to the AD patient* which was specified according to three categories: spouse, child or child-in-law, and other relative such as sibling, niece/nephew and so on.

2.*Gender of caregiver.*

3.*Quality of the pre-illness interaction between the patient and caregiver* which was measured using a 5 item Likert scale developed by the research group. This scale incorporated questions on the degree of closeness, support, compatibility and friendship inherent in the relationship and the sense of loss felt by the caregiver due to the patient's illness. Previous studies have simply asked caregivers to rate this relationship on a 10 point continuum from poor to excellent.

4.*The caregiver's style of delivering care* which was classified according to three categories described by Archbold: provision, where the caregiver identifies services the

patient needs and provides them personally; management, where the caregiver identifies services the patients needs and manages their provision by others; and transfer, where the caregiver completely transfers all caregiving activities for example to a nursing home. For the purposes of this study, only categories 1 and 2 were applicable.

5.*Patient's ability to perform Activities of Daily Living* (ADL) was a mean of items which measured caregiver's assessment of their relative's ability to do instrumental and physical ADL tasks. The scale was from the Duke University Multidimensional Functional Assessment or OARS methodology.

6.*Patient's cognitive impairment* was a 13 item scale to measure the caregiver's assessment of the levels of their relative's cognitive impairment. The scale was developed by the Benjamin Rose Institute and is called The Family Assessment of Caregiving to Seniors.

7.*Objective Burden of the caregiver* is a measure of personal changes in the caregiver's life that have occurred since caring for their ill relative. The scale is from Montgomery, Gonyea and Hooyman (1985).

8.*Subjective Burden of the caregiver* was measured using a Likert scale developed by Montgomery and Gonyea, which asks about feelings like nervousness, depression, guilt, irritation, inadequacy, confinement and others.

9.*The impact of caregiving on the caregivers physical health*. This variable was measured by the following question: "Has your physical health been affected by caring for (your relative)? Yes___ No___"

10. The impact of caregiving on the caregivers mental health. This variable was measured by the following question: "Has your mental health been affected by caring for (your relative)? Yes___ No___"

11.*Frequency of family help* was based on frequency of face-to-face help from nearby relatives, and was divided into three categories: family not available, daily/weekly, monthly or less.

Caregivers who still had their relative at home were asked about present circumstances, while those who had already institutionalized their AD relative were asked about circumstances prior to that decision.

12.*Nature of family help* was classified into three categories: primarily instrumental (such as help with household chores, finances and so on); primarily expressive (like visiting or moral support); a balanced combination of instrumental and expressive support. When caregivers received neither type of support, it was noted but not classified.

13.*Use of formal services*. Caregivers were also asked about their *use of community and government support services*. They were provided with a list and asked to indicate which ones they had ever used or to name any they had used which did not appear on the list. Caregivers were also asked to assess the helpfulness of any services they had used, and to describe areas in which they felt more support was needed. A total number of services used was calculated.

Dependent variable. The dependent variable was amount of time the person had been caring for her relative. This was determined to be a more accurate measure of the length of the caregiving experience than time since diagnosis. Some caregivers assume the caregiving role prior to the patient's diagnosis, while others do not begin to care for their relative until after the diagnosis is made.

Findings

Caregiver Characteristics. *Table 1* illustrates some basic characteristics of the caregivers in this study. The sample was comprised of 70 caregivers. The average age of caregivers was 61.7 with a range of 30 to 93 years.

1) Gender. Similar to other studies, the majority of caregivers were female.

2)Kinship relationship. Half were spouses and most of the rest were children or children-in-law.

3)Impact on physical health. Just over half stated that caring for their relative had a negative impact on their physical health.

4)Impact on mental health. A larger proportion stated that caring for their relative had a negative impact on their mental health.

5)Subjective burden. Subjective burden of caregivers is relatively high. (Scale goes from 0, no burden; to 4 often feel burdened). However, there is a very large range on this variable.

6)Objective burden. Caregivers reported a high level of objective burden.

7)Style of caregiving. The majority of caregivers were care providers who provided most of the care to their relatives themselves.

8)Time caregiving. The average time caregiving was over 4 years with a range from less than 1 to 18 years.

9)Quality of pre ADL relationship. The majority of people rated their previous relationship with the patient very positively. (The possible range on this variable was from 1, very good; to 5, very poor.). However, the wide range on this variable indicates that some people saw their previous relationship as difficult.

Patient Characteristics. *Table 2* shows a summary of patient characteristics.

1)ADL. The average mean ADL score indicates the level of dependence of patients in daily activities such as handling money and dressing. The possible range on this scale is 1

to 3 with 3 being completely dependent. The mean indicates a rather high level of perceived dependence of patients although the range indicates that some caregivers felt that their relative still coped fairly well.

2)Cognitive impairment. The possible range on this scale is also 1 to 3 with 3 indicating a high level of cognitive impairment. The mean level of impairment from the perspective of caregivers was relatively high although there was also a large range on this variable.

Services/Help. *Table 3* gives a summary of formal and informal services and help.

1) Total services used. Respondents had used an average of 3.7 services in providing care to their relatives, although use of formal services ranged from 1 to 10. Of all categories of service, only day care was substantially criticized. A majority of the caregivers who had used this service had difficulties transporting the patient to the programs and found programs were more disruptive to patient behaviour than helpful. This situation may be aggravated as the patient's condition deteriorates. Additional help was most often requested in three areas. Respite was first at 20%, followed by home care at 11% and better opportunities for diagnosis/early education (11%). In terms of respite, caregivers stressed that they would like in-home respite for short periods of time such as for a few hours during the day or overnight. However, they stressed that they would need to feel confidant that respite personnel could manage their AD relative well.

2)Frequency of family help. Almost half of caregivers reported daily or weekly family help. However, almost forty percent received little or no help and thirteen percent reported that family was geographically or emotionally unavailable.

Over thirty percent received no help from family members. Most received instrumental help such as running errands or driving the patient to appointments. A smaller proportion received a mixture of affective and instrumental help.

Predictors of institutionalization. *Table 4* shows the results of the stepwise multiple regression analysis with independent variables described in the literature review and methods section. The dependent variable is number of years the relative was cared for at home. All variables were forced into the analysis to show the relative contribution of each to the variance in years the relative was kept at home. The cumulative R2 indicates that 15.2% of the variance was explained.

1)Number of formal services used. This was the most important predictor of years the relative was kept at home. The greater the number of services used, the greater the number of years at home.

2)ADL. The more independent in activities of daily living, the longer the person was kept at home.

3)Nature of assistance from family. The more affective or mixed the assistance from family, the longer the person was kept at home. Instrumental assistance or lack of family assistance were associated with fewer years at home.

4)Cognitive impairment of the patient. The greater the cognitive impairment, the more years the patient was kept at home.

5)Impact on mental health of caregiver. The less the impact on the caregivers mental health, the longer the patient was kept at home.

Other variables contributed little to the total variance.

Intercorrelations of variables. Table 5 indicates the intercorrelations among the variables analyzed in this study. Of interest are the relatively low levels of correlation between the independent variables and the dependent variable, amount of time relative was cared for at home. Correlations at or above .3 included the following:

1)Children are more likely than spouses to be care managers.

2)Caremanagers report poorer pre illness relationships with their ill relative than do care providers.

3)The better the quality of the pre illness relationship, the greater the objective burden of the caregiver.

4)Care managers have less objective burden.

5)Those with high objective burden have high subjective burden.

6)Women report more subjective burden than do men.

7)The more dependent the patient on help with activities of daily living, the more formal services used.

8)The greater the negative effect on the caregiver's physical health, the greater the objective burden.

9)The greater the negative effect on the caregiver's mental health, the greater the objective burden.

10)The greater the negative effect on the caregiver's mental health, the greater the subjective burden.

Discussion and Conclusions

The sample for this study of caregivers was similar to others in many respects. Caregivers were divided almost equally into spouses and children. The only other relatives who were primary caregivers were three sisters. Although there may be biases in this sample, the kinship relationships of these primary caregivers suggest that the pool of eligible caregivers is rather small and does not extend to those outside a narrowly defined set of kin.

Although most caregivers were female, a substantial minority were male. The assumption that caregiving falls to women, although substantially correct, may result in practitioners not being alert to possible differences in caregiving experiences and practices of men and women. For example, correlations from Table 5 indicate that females report more subjective burden than do men. The great range in age of caregivers also reminds us of how heterogeneous is this group. More attention needs to be paid to the competing family and employment demands on younger caregivers.

Presumptions that caregiving of Alzheimer's relatives will inevitablly have a negative impact on the caregiver were only partially reflected in the frequencies on caregiver variables. For example, the great range on caregiver burden could indicate several things. It may be that similar to other crisis situations, some caregivers adapt to changes in their relative so that in fact they do not experience burden even in the face of several years of caregiving. It may be that close relatives are reluctant to admit that caring for a loved one is stressful. Or it may be that this task is no more burdensome than other difficult life situations. Further exploration of the differences between those experiencing high versus low burden is warranted.

The range of subjective burden is less than for objective burden, perhaps reflecting the inevitability of changes in the life of the primary caregiver. A relatively large proportion of caregivers reported no impact on either their physical or mental health. Some further examination of the strengths of this group of family caregivers may help us better understand how some caregivers manage relatively unscathed while others provide care at high personal cost.

The great range in years of caregiving reflects the fact that for some caregivers, their relative may have had other illnesses or disabilities before the onset of Alzheimer's disease. For example, one woman moved into her mother's home after the death of her father as her

mother was frail and needed assistance. Several years later, mother was diagnosed as having Alzheimer's disease. Caregiving does not fall into discrete categories.

Caregivers rated their relatives quite high on both dependence for help with activities of daily living and cognitive impairment. No measures were done by professionals such as occupational therapists to corroborate these impressions. However, in terms of the caregiving experience, the more subjective measures are probably most important.

All caregivers used some formal support services. As indicated earlier, most felt these services were important in helping them to care for their relative at home. Not all received assistance from other family members. In fact, less than half received help on a regular basis (daily or weekly). Most assistance was instrumental: help with driving, shopping etc., although spouse caregivers in particular said that they appreciated affective assistance such as concern about their welfare or that of the patient. The Watson thesis which is part of this report addresses issues of the provision of family help to primary caregivers.

Predictors of tenure of home care. Of the predictors of the amount of time a patient was kept at home, the most important was the number of services used. This may be because those whose relatives were at home longer may have had relatives who were more debilitated and needed more supportive care. It may be that with caregiving experience one becomes more knowledgeable about sources of available service. In contrast, those who had strong negative feelings about institutionalization may have been more willing to mobilize whatever resources are available in order to keep their relative at home. It would be useful to further investigate the reasons caregivers seek specific services. Professionals may wish to deal differently with caregivers who are seeking services to avoid institutionalization of their relative than those who have a specific service need.

Why the number of services used should predict years at home is unclear. Perhaps high use of services effectively turns a care provider into a care manager, thus freeing the

caregiver so that she can manage longer. The latter hypothesis may account for the fact that style of caregiving did not add to the explained variance in the regression analysis. However, the concerns expressed about the adequacy and accessibility of services will not be surprising to those who are professional care providers. Most used and most requested were respite and home care. Yet there were grave concerns expressed about the difficulties of some institutional respite care, particularly that provided on a daily basis. We can only underline the need to provide respite to the caregiver that is minimally disruptive to the patient. An upset patient can negate any possible benefit from caregiving respite.

The higher the level of independence of the patient in activities of daily living, the longer the patient was kept at home. This finding makes intuitive sense. It is the day to day caregiving that has lead professionals and caregivers to talk about the '36 hour day' in caring for a relative with dementia. However, it is also possible that some caregivers underplay the level of dependence of their relative in order not to feel overwhelmed with the tasks of caregiving. Whether or not such denial techniques are healthy is beyond the scope of this research and undoubtedly varies from situation to situation.

It is difficult to determine the significance of the relationship between family help and years the patients was kept at home. Those who received no help or only instrumental help, were likely to place their relative sooner than those who received affective or mixed kinds of help. It may be that some kinds of 'help' are seen as unsupportive. For example, a family member who stays with the ill relative for an afternoon and then complains to the caregiver about the care she is giving is not providing much respite. Contact with family members may also provide a battleground for some families to play out their unresolved conflicts. In that case, the amount of help might actually 'cause' a beleaguered caregiver to place her relative, because family conflict is added to the day to day burdens of providing care. Thus 'no help', or 'no supportive help' may be predictors of early placement.

Relatively few caregivers reported affective help from other family members. This may simply be a measurement error in that concern or caring may not be viewed as help in the same way as is a concrete service such as bathing the ill relative. Some family members may withhold such expressions of concern for fear of being drawn into more intensive caregiving than they are prepared to do.

The nature of family help needs to be much further explored before there are clear implications for practice. In this study, the vast majority of caregivers reported that assistance received from family members was helpful. Yet of the five most often reported types of family help, fewer than half of caregivers had received that help. In some cases, family involvement may be supportive to a relative who is near the end of her coping abilities. It seems just as likely, however, that for some families, high levels of contact with family members may make caregiving more difficult.

The direction of the relationship between level of cognitive impairment of the patient and years the patient was kept at home was contrary to expectations. The greater the perceived impairment, the longer the patient was kept at home. This finding seems mostly likely to indicate an association rather than a causal relationship. Those who keep their relatives longer may have relatives who are more impaired. However, it seems unlikely that having a more impaired relative causes a caregiver to keep the relative at home for longer.

Of the caregiver characteristics, only impact on mental health contributed significantly to years the patient was kept at home. This is not surprising since we would expect that those with serious mental health problems would be unable to provide care nor have the emotional energy to manage care.

Other possible correlates of institutionalization such as measures of burden were gathered retrospectively from many respondents who had already institutionalized their AD

relative. A prospective study would help eliminate recall bias and provide a way of further assessing the extent of relationship between burden and institutionalization. To date, our findings and those of other researchers indicate that the relationship is not strong.

The relatively small amount of the variance explained in the regression analysis suggests that other factors may be more influential in determining the timing of placement of an Alzheimer's patient. Caregiver's previous and current attitudes about institutionalization may predispose some to avoid placing their relative even at very high costs to themselves. Previous positive or negative experience with an actual extended care setting may determine this response set. Caregiver's religious beliefs or coping strategies may determine whether they turn inward and manage on their own or to look to others for support. The former type of caregiver might try to manage on her own for longer. As well, physical or other crises of either caregiver or patient may precipitate a move to place the relative even though that move was not anticipated. For example, a younger caregiver who is transferred to a new job at a distance from her relative may be no longer able to manage her mother's care. Finally, the system of placement itself may be important. People may be placed on a waiting list for care as insurance against future needs for care. If a bed becomes available, the caregiver is faced with the dilemma of placing her relative 'too early' or giving up that place and not having a bed in the future when it is needed.

Implications for practice. The findings from this study lead to two sets of practice issues for family members and professionals who care for Alzheimer's patients. These are not new issues, since many are those that practitioners have been aware of for some time. However, at the risk of this part of the report sounding platitudinous, let me state those issues that emerge from this research.

First, it seems clear from this study that we have a great deal to learn about the current and previous dynamics of families in which a member has Alzheimer's disease. One of the practice assumptions among community based professionals is that extended families are a potential resource to the caregiver if that resource can be properly mobilized. Yet our findings suggest that in some cases, at some points in the disease process, in some families, this may not be the case. As professionals we might do well to try to determine the potential for support by determining in some detail, previous family interaction, expectations and wishes of current family caregivers and formal care alternatives. Often families know well before a crisis, who will be the chosen caregiver and how other family members will be involved or not in help or support. It may be that these issues are more important than levels of burden experienced by caregivers. Thus a focus on potential resources rather than primarily on costs in caregiving might be profitable.

Second, the current emphasis on the provision of community support to caregivers and their ill relatives needs to be elaborated with detailed proposals about the specific type and location of care for those with Alzheimer's disease. Clearly a variety of solutions to an issue such as respite are necessary. While day care may be appropriate for some patients at certain points in the disease process, it may be inappropriate for some caregivers who find issues of transportation and disruption to their relative negate the benefits of time to themselves. Surely we have already made the case for the need for community based care. The next step is to determine the optimal range of care for AD patients and their relatives.

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Table 1
Caregiver Characteristics

Variable Name	Category	Frequencies	
		Count	Percentage
Gender of caregiver	Male Female	17 53	24.29 75.71
Kinship relationship	Spouse Child Sister	35 32 03	50.00 45.71 4.29
Impact on physical health of caregiver	Yes No	39 31	55.71 44.29
Impact on mental health of caregiver	Yes No	44 31	62.86 44.29
Subjective burden of caregiver	(Mean) (Range)	1.92 .1-3.7	
Objective burden of caregiver	(Mean) (Range)	4.03 3-4.8	
Style of Caregiving	Provider Manager Transfer	50 15 04	72.46 21.74 5.80
Time caregiving	(Mean) (Range)	4.56 years 0-18years	
Quality of pre ADL relationship	(Mean) (Range)	1.43 1-3.8	

Table 2
Patient Characteristics

Variable Name	Category	Frequencies	
		Count	Percentage
ADL	(Mean) (Range)	2.02 1.1-2.8	
Cognitive impairment of patient	(Mean) (Range)	1.9 1.4-2.7	

Table 3
Services/Help

Variable Name	Category	Frequencies	
		Count	Percentage
Total formal services used	(Mean) (Range)	3.7 1-10	
Nature of Assistance from family	None Instrumental Affective Mixed	23 26 4 17	32.86 37.14 5.714 24.286
Frequency of family help	None available Daily/weekly Monthly or less	9 33 27	13.04 47.83 39.13

Table 4
Stepwise Multiple Regression
Dependent Variable: Years caregiving

Independent Variables	Cumulative R2	Beta	F
Number of formal services used	.038	.194	2.505
ADL	.037	-.203	2.551
Nature of assistance from family	.025	.158	2.287
Cognitive impairment of the patient	.019	.141	2.059
Impact on mental health of the caregiver	.012	-.111	.804
Kinship relationship of caregiver and relative	.008	-.098	1.585
Impact on physical health of caregiver	.004	.074	1.384
Gender of caregiver	.005	.079	1.235
Objective burden of caregiver	.002	.062	1.096
Subjective burden of caregiver	.001	-.049	.997
Style of caregiving	.000	.034	.878
Quality of pre ADL relationship	.000	-.025	.793
Frequency of family help to caregiver	.000	.004	.718

Cumulative R2=.152

Table 5
Correlation Matrix

	KIN	QUAL	CARE	ADL	CI	IMP	SB	NAT	FAMHELP	SEX	SERVICES	HEALTH	PSYCHE	TIME
KIN	1													
QUAL	.159	1												
CARE	.373	.303	1											
ADL	-.241	-.159	-.145	1										
CI	.185	-.038	.019	.159	1									
IMP	-.246	-.314	-.321	-.041	.063	1								
SB	.085	-.117	.105	-.172	.135	.502	1							
NAT	-.061	-.019	.032	-.012	.015	-.01	.1021	1						
FAMHELP	-.182	.032	.054	-.04	-.29	.012	-.057	-.036	1					
SEX	.287	-.04	-.025	-.29	.167	.29	.375	.088	-.216	1				
SERVICES	.066	.001	-.088	.311	.013	.053	.098	-.069	-.064	.034	1			
HEALTH	.242	.081	.131	.039	.081	-.581	-.39	.098	-.057	-.194	-.192	1		
PSYCHE	-.113	.284	.034	.078	-.031	-.363	-.543	.141	.055	-.234	.133	.196	1	
TIME	.017	-.05	-.026	-.123`	.11	.118	.143	.142	-.055	.171	.194	-.028	-.07	1